

CLAIMS

What is claimed is:

- 1 1. A system for synchronizing a portable transceiver to a network,
2 comprising:
3 a crystal oscillator;
4 a frequency synthesizer adapted to receive an output of the crystal oscillator;
5 logic coupled to the crystal oscillator, the logic configured to estimate a
6 frequency error of a received signal; and
7 a first control signal supplied from the logic to the frequency synthesizer, the
8 first control signal configured to adjust the frequency synthesizer to compensate for the
9 error.
- 1 2. The system of claim 1, further comprising:
2 tuning circuitry coupled to the crystal oscillator, the tuning circuitry having a
3 limited adjustment capability; and
4 a second control signal supplied from the logic to the tuning circuitry, the
5 second control signal configured to adjust the tuning circuitry, the tuning circuitry
6 configured to compensate for the error.
- 1 3. The system of claim 2, wherein the adjustment of the frequency
2 synthesizer adjusts the timing of the portable transceiver with respect to a
3 communication network.
- 1 4. The system of claim 3, wherein the timing adjustment comprises
2 adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep
3 calibration element.

1 5. The system of claim 3, wherein the tuning circuitry comprises a digital-
2 to-analog converter.

1 6. The system of claim 3, wherein the tuning circuitry comprises a
2 capacitance array.

1 7. The system of claim 6, wherein the capacitance array comprises fixed
2 capacitance.

1 8. The system of claim 6, wherein the capacitance array comprises
2 variable capacitance.

1 9. The system of claim 8, wherein the adjustment capability of the
2 capacitance array can tune the system to between ± 2 parts per million (ppm) and
3 ± 2.5 ppm with respect to the frequency and timing of the communication network.

1 10. A method for synchronizing a portable transceiver to a network,
2 comprising:
3 determining a frequency error of a signal received by the portable transceiver;
4 and
5 if the frequency error is less than a predetermined value, adjusting the
6 frequency of the system by adjusting a frequency synthesizer to compensate for the
7 error.

1 11. The method of claim 10, further comprising:
2 adjusting the frequency of the crystal oscillator by adjusting a tuning
3 circuit associated with the crystal oscillator.

1 12. The method of claim 11, wherein the adjustment of the frequency
2 synthesizer adjusts the timing of the portable transceiver with respect to a
3 communication network.

1 13. The method of claim 12, wherein the timing adjustment comprises
2 adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep
3 calibration element.

1 14. The method of claim 12, further comprising using a digital-to-analog
2 converter (DAC) to adjust the frequency of the crystal oscillator.

1 15. The method of claim 12, further comprising using a capacitance array
2 to adjust the frequency of the crystal oscillator.

1 16. The method of claim 15, further comprising using a fixed capacitance
2 array.

1 17. The method of claim 15, further comprising using a variable
2 capacitance array.

1 18. The method of claim 17, wherein the adjustment capability of the
2 variable capacitance array tunes the system frequency to between ± 2 parts per million
3 (ppm) and ± 2.5 ppm of the frequency of the communication network.

1 19. A system for synchronizing a portable transceiver to a network,
2 comprising:
3 means for determining a frequency error of a signal received by the portable
4 transceiver; and

1 means for adjusting the frequency of the system by adjusting a frequency
2 synthesizer to compensate for the error if the frequency error is less than a
3 predetermined value.

1 20. The system of claim 19, further comprising:
2 means for adjusting the frequency of the crystal oscillator by adjusting a tuning
3 circuit associated with the crystal oscillator.

1 21. The system of claim 20, wherein the adjustment of the frequency
2 synthesizer adjusts the timing of the portable transceiver with respect to a
3 communication network.

1 22. The system of claim 21, wherein the timing adjustment comprises
2 adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep
3 calibration element.

1 23. The system of claim 21, wherein the means for adjusting the frequency
2 of the crystal oscillator comprises a digital-to-analog converter (DAC).

1 24. The system of claim 21, wherein the means for adjusting the frequency
2 of the crystal oscillator comprises a capacitance array.

1 25. The system of claim 24, wherein the capacitance array comprises a
2 fixed capacitance array.

1 26. The system of claim 24, wherein the capacitance array comprises a
2 variable capacitance array.

1 27. The system of claim 26, wherein the adjustment capability of the
2 capacitance array tunes the system frequency to between ± 2 parts per million (ppm)
3 and ± 2.5 ppm of the frequency of the communication network.